OBiber

Library,
Bureau of Markets,
U. S. Department of Agriculture
Washington, D. C.

THE PLANT DISEASE BULLETIN

Issued by

THE PLANT DISEASE SURVEY

LIBRARY
RECEIVED
★ NOV 9 1920 ★
U.S. Dept. of Agriculture

VOLUME IV NUMBER 8

November 1, 1920

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE PLANT DISEASE BULLETIN

Issued by

THE PLANT DISEASE SURVEY

Vol. IV. November 1, 1920 Number 8

Contents

Potato 117
Tomato.....118
Cabbage.....119
Cotton.....121
Peanut.....122
Rice.....122

PLANS FOR SUMMARIZING 1920 DATA

In preparing the summaries of diseases for the year 1919 we were fortunate in having the assistance of Dr. A. G. Johnson of the Wisconsin Experiment Station and Mr. Lee M. Hutchins of the Office of Fruit Disease Investigations of the U. S. Department of Agriculture, Dr. Johnson working on cereal diseases and Mr. Hutchins on fruit diseases. We hope to continue this practice in the future and each year to secure the assistance for a few weeks during the winter of two or more collaborators or specialists from the Bureau of Plant Industry to cooperate with us in summarizing and interpreting the past season's disease data.

Our object in following this plan is twofold. In the first place the value of the annual summaries is increased because the accumulated information in our files is critically reviewed and studied by experts on the diseases of various crops, who bring to the work year after year new points of view and fresh interest in the problems presented. In the second place an opportunity is thus afforded plant pathologists to become more intimately acquainted with the present work and problems of the Survey. There is thus developed a closer understanding and a stronger spirit of cooperation, which is an asset of great importance for the future development of the Plant Disease Survey and for its increased usefulness.

This winter Dr. F. D. Fromme of the Virginia Experiment Station will spend one month with us summarizing the diseases of cereal crops and Dr. H. W. Anderson of the Illinois Experiment Station will spend an equal time working on fruit diseases. We are anxious that the annual reports from the states this year, especially those on diseases of cereals and fruit crops, may be as full and complete as possible and that they may come in promptly from all states.

COLLABORATORS' ANNUAL CEREAL REPORT DUE NOVEMBER 1

The annual report on cereal diseases has already been called for, due November 1. The report on other crops will be asked for about December 15. It is hoped that collaborators will be getting their data together so that the reports can be made promptly, and it is especially hoped that all users of this Bulletin will cooperate with the collaborators in their states by furnishing whatever information they may be able to contribute.

PLANT DISEASE BULLETIN MAILING LIST STATISTICS

The regular numbers of the Plant Disease Bulletin are issued twice monthly during the summer months, and in addition, Supplements giving special reports and summaries are published from time to time.

The Bulletin reaches about 496 persons in various professions who are distributed geographically according to the accompanying table. In the group of Plant Pathologists are included those persons who are distinctly engaged in plant pathological work or who are members of the American Phytopathological Society. In the group of Botanists and Agriculturists are listed the names of botanists in the broad sense, teachers of botany, agronomists, plant physiologists, crop specialists, etc. The miscellaneous group is made up of the names of administrators such as heads of offices in the Government service, directors of experiment stations in the states, railroad officials, teachers, etc.

Table 14. Classification of mailing list of the Plant Disease Bulletin according to professions and geographic location.

Plant pathologists		
(a) in Washington	67	
(b) in States	177	
(c) in Canada	6	
(d) in Foreign Countries	8	
		258
Botanists and agriculturists		
(a) in Washington	17	
(b) in States	66	
(c) in Canada	11	
(d) in Foreign Countries	5	
		99
Libraries		
(a) in Washington	3	
(b) in States	26	
(c) in Canada	2	
(d) in Foreign Countries	4	
		35
Entomologists		
(a) in Washington	2	
(b) in States	4	
		6
County agents in States		10
Market inspectors in States		14
Miscellaneous		
(a) in Washington	7	
(b) in States	67	
		74
Total		496
Total number in Washington	96	
Total number in States	364	
Total number in Canada	19	
Total number in Foreign Countries	17	
		496

POTATO

Late blight caused by Phytophthora infestans.

Reports from Vermont indicate that this has been one of the worst years as far as late blight is concerned that the state has experienced. Recent reports have also been sent in showing the present situation in Ohio, Wisconsin, and Oregon. The detailed reports are as follows:

Vermont: General, state-wide infection. Occurs everywhere this year on all types of soil. Tuber rot is bad, especially on heavy clays, and will cause a loss through the state of 25-50% of the entire crop. One of the worst blight years we have ever had here. (Lutman, Oct. 15)

Ohio: Distributed throughout the state, with infection more severe in central and northeastern regions where there has been abundant precipitation throughout the season. Infection much less in the northwest and western regions where drier conditions have prevailed. There have been many reports received of the appearance of wet rot in fields of both early and later planting. Evidence is lacking to determine accurately how much of this wet rot is due to late blight. (Detmers, Oct. 15).

Wisconsin: Scattering tuber infection has been found in the northern and north-eastern counties and in Sauk County. Losses will be practically "nil". (Vaughan, Oct. 15)

Oregon: Reports of severe damage to vines being received from Coast sections. Did not appear until late September. Damage will be in development of tuber rot rather than in reduced yields. Total extent and distribution of damage not yet determined. (Barss, Oct. 15)

Mosaic (cause undetermined)

Field study this year has shown that mosaic is more widely distributed and more destructive than was commonly supposed. The reports given below from Vermont and Oregon are of special interest.

Vermont: About 25-50% of plants affected. The loss from it will be much smaller than usual on account of the cool, rainy season. Tip-burn is more severe on bad mosaic types and the hot weather did not appear this year - at least not hot enough to make much tip-burn. (Lutman, Oct. 15)

Oregon: Mosaic was found this year in a rather large number of plants in some fields. It is widely distributed, occurring in at least a small percentage of plants in most fields seen. The loss from reduced yield is probably not large. The chief damage is in a reduction of the quality of the potatoes for seed purposes. (McKay, Oct. 15)

Verticillium wilt caused by Verticillium albo-atrum.

The only report of this disease that has thus far been received by the Survey is from Oregon. This report is as follows:

Oregon: Verticillium wilt occurred commonly in the potato fields in Western

Oregon. in most cases, however, the percentage of affected plants was low. The loss in yield may be around 3%, though no exact figures are available. (McKay, Oct. 15)

TOMATO

Fusarium wilt caused by Fusarium lycopersici.

Since the last report on this disease, notes of occurrence have been received from Massachusetts, Pennsylvania, and Kentucky. In Massachusetts and Kentucky the disease is not at all serious, but in Pennsylvania as high as 50% infection was reported from Westmoreland County.

In Kentucky, according to Valleau, the disease is "common in many sections of state. Found in 25-40% of fields near Henderson and Owensboro. In many cases infection in new land can be traced to infected seedbeds."

Leaf spot caused by Septoria lycopersici

Reports of heavy losses from leaf spot have been received from Pennsylvania and Kentucky under date of September 15. In Pennsylvania J. H. Muncie reported very severe infection in Erie County, only one or two pickings being made in many commercial fields.

In Kentucky serious losses occurred wherever tomatoes were grown and both early and late crops were affected.

Bacterial blight caused by Bacterium solanacearum

During the last month reports of the non-occurrence of this disease have been received from the following states: Massachusetts, New York, New Jersey, Kentucky, Tennessee, Ohio, Indiana, Michigan, Wisconsin, Minnesota, Oregon, and Washington. Affirmative reports are at hand, however, from Virginia, Texas, and Arizona. Of these three states Arizona is the only one that reports any particular damage. Regarding the trouble J. G. Brown of that state reports as follows:

> "Definitely determined in material from Jerome, Arizona, in both cultures and by staining in situ in stem sections. Probably common. Has been mistaken for Fusarium wilt. Damage probably 10%."

Other diseases.

Late blight caused by Phytophthora infestans is very general on tomatoes in Pennsylvania this year, according to reports from the Department of Botany at State College. Losses of from 10 to 20% have been reported and it is thought that the unusual occurrence this year is correlated with the late blight of potatoes.

Western yellow blight (cause not fully determined) is reported by

H. P. Barss as common in the Columbia basin and eastern portion of Oregon. The damage is severe this year. The disease is the limiting factor of tomato growing in these regions.

Buckeye rot caused by Phytophthora terrestria has been reported by F. J. Pritchard as being very common in the experimental plots at the Arlington Experimental Farm, Virginia. In certain fields it probably destroyed .5% of the fruit.

Stripe, cause undetermined. This disease, which is probably the same as the winter blight that has been reported from Pennsylvania in past seasons, is now being found in New York rather commonly. According to the Department of Plant Pathology at Ithaca, the disease is prevalent in Niagara County and doing a large amount of damage. In badly infected fields practically all the leaves were killed, and no field in Niagara County seemed to be free from the disease. Stripe also has been found in other parts of the state, both in the field and in the greenhouses.

CABBAGE

The following report by F. D. Fromme regarding conditions in the cabbage section of southwestern Virginia is of interest:

> "Dr. L. L. Harter and the writer spent July 26 and 27 on a disease survey of the cabbage section of southwestern Virginia. This section, which extends from Wytheville to Marion, comprises about 5,000 acres grown chiefly as a late crop for southern markets. One unusual feature of the section is the elimination of seed beds, the seeding being done directly in the field. A few extra early fields are set with plants shipped in from the south. The principal disease is yellows. This was found to some extent in nearly all fields visited and amounted to 80% infection in the worst field. Black leg was second in importance, but did not exceed 10% in any field seen. Soft rot (B. carotovorus) was found in a few fields on early plants. Not a single case of club root or black rot was seen. The principal variety is All Head Early. Others grown to a lesser extent are Copenhagen Market and Danish Ball Head."

Club root caused by Plasmodiophora brassicae

In most states reporting the disease, club root is apparently only locally important, but it is said to be prevalent and serious in some cases in the northern part of Ohio.

Vermont: Considerable locally - occasional elsewhere in gardens and market gardens on cabbage and cauliflower. (Lutman, Oct. 15)

Connecticut: In every garden that I examined, the owner complained of club root and it seemed to be very prevalent. This was in an Italian settlement where the gardens were well taken care of. (George Haines, July 24)

Rhode Island: Heavy infestation in one garden, Woonsocket. (Hesler, Aug. 4)
Pennsylvania: Few reports, local in Lackawanna, Luzerne, Pike and Center Counties. (Thurston, Oct. 15)
Ohio: Prevalent throughout the northern counties of the state. Observations made on field trips show from 50 to 75% infection in some gardens. (Detmers, Oct. 15)
Wisconsin: A small amount of this disease has been observed in Racine and Kenosha section. I have also one specimen from Portage County. It seems to be spreading. (Vaughan, Oct. 15)
Minnesota: First report July 1st from Ramsey County. Seventy-five percent of the plants infected and fifty percent of reduction in yield in a two-acre field. Several other fields fairly badly affected observed in Ramsey County. (Stakman, Oct. 15)
Oregon: Reported as present in state but total damage probably not large. (Barss, Oct. 15)

Yellows caused by Fusarium conglutinans

Yellows is said to be prevalent and doing considerable damage in Ohio. In Wisconsin it has caused less apparent loss than usual. In Minnesota only one report was received (Plainview, July 27) and it has been reported from Adams and Huntingdon Counties in Pennsylvania.

Wisconsin: The losses from yellows have been less than usual. It is considered that this is associated with the lower soil temperature than occurred in 1919. In one test field - Union Grove - six of seven head strains of Wisconsin All Seasons gave a stand free from yellows, while the check row gave 67% yellows. (Vaughan, Oct. 15)

Black leg caused by Phoma lingam

Pennsylvania: Some damage in Philadelphia County. (Thurston, Oct. 15)
Wisconsin: There is considerable black leg present and mixed with black rot. The farmers call it all rot and often fail to understand why the so-called Wisconsin Hollander is not free from disease. (Vaughan, Oct. 15)

Black rot caused by Bacterium compestre

In Vermont and Wisconsin black rot is reported as more prevalent than it has been for several years. The disease is said to be causing considerable damage in parts of Ohio and Minnesota.

Vermont: Observed locally in market gardens. Not severe but fairly common for the first time in years due to the very wet September. (Lutman, Oct. 15)
Ohio: Specimens were received from Montgomery and Richland Counties. Observations made during a field trip show very severe infection in Washington County Truck Farms. (Detmers, Oct. 15)
Wisconsin: There is more black rot than for several years. Dane, Outagamie and Brown Counties have been especially hard hit. It seems to be associated with imported Hollander seed. Domestic grown seed is practically free from black rot and where plants from different seed sources

meet there is only a small amount of spread. (Vaughan, Oct. 15)

Minnesota: General in Wabasha County. Number of infected plants ranging from trace to 98%. Average loss probably 10-15%. (Stakman, Oct. 15)

Bacterial soft rot caused by Bacillus carotovorus

Wisconsin: Soft rot is accompanying black rot in many store houses and car shipments. There is more than usual owing to the high autumn temperatures. (Vaughan, Oct. 15)

COTTON

Additional reports on cotton diseases are of the same general nature as those given in previous numbers of the Bulletin (Pl. Dis. Bul. 4 : 77-79; 108-109. Sept. 15 and Oct. 15, 1920).

Fusarium wilt caused by Fusarium vasinfectum

Tennessee: Observed at Jackson, West Tennessee, in September. Not serious. (Hesler, Oct. 15)

Mississippi: Occurs widely over the state. Mainly on the sandy loam soils and where non-wilt varieties are employed. (Neal, Oct. 15)

Arkansas: Severe in Mississippi Valley this year. Infection pretty general in the eastern part of the state, 3-5% loss. (Elliott, Oct. 15)

Root knot caused by Heterodera radicicola

Mississippi: Observed only on the Experiment Station farm. (Neal, Oct. 15)

Arkansas: Some reported in the sandy sections. Probably much more severe than is known, possibly 1% loss. (Elliott, Oct. 15)

Anthracnose caused by Colletotrichum gossypii

Tennessee: All fields observed showed more or less anthracnose this season. The infection percentage ranged from 1-90%. Damage for 1920 average. (Hesler, Oct. 15)

Mississippi: Present in several localities in the state, but the weather has not been favorable for its spread this season, consequently little damage has been reported. (Neal, Oct. 15)

Arkansas: Severe on some cotton, especially half and half, from seed brought in from east of the Mississippi River. 2% loss. (Elliott, Oct. 15)

Angular leaf spot and boll rot caused by Bacterium malvacearum

Bacterium malvacearum is generally prevalent in the Salt River and Santa Cruz Valleys in Arizona, causing severe damage as black arm and angular leaf spot

and slight damage by inducing the premature opening of the bolls, according to J. G. Brown. The disease is also reported from Arkansas as follows:

Arkansas: Very general and in some cases severe. It initiates a large percentage of boll rots that occur when weather conditions are favorable. 3% loss. (Elliott, Oct. 15)

"Rust" or malnutrition (non-parasitic)

Reports by G. M. Armstrong from South Carolina and Georgia, and J. A. Elliott from Arkansas, indicate that "rust" is not important in those states this year. Abundant moisture in Arkansas is given as the probable cause.

PEANUT

Leaf spot caused by Cercospora personata is reported as very common in Louisiana and common on the White Spanish variety in Tennessee. In this latter state White Spanish seems to be more susceptible, perhaps because of the difference in stage of development, this variety being more mature than the others.

Sclerotial blight caused by Sclerotium rolfsii has been observed at the Western Tennessee Experiment Station at Jackson in September, according to a report by L. R. Hesler from Tennessee. In Louisiana C. W. Edgerton also reports the disease as more or less common, but the total loss is not large.

Leaf blight, probably caused by Botrytis sp., was fairly common in the field at Jackson, Tennessee, during September, according to C. D. Sherbakoff.

RICE

The following reports on rice diseases have been received from C. W. Edgerton of Louisiana under date of October 1:

Blast caused by Piricularia oryzae is about the same as usual. The loss has not been heavy, though the disease is common.

Leaf spot caused by Cercospora spp. is common everywhere, but loss is slight.

Straight head or blight (physiological) is very abundant and especially severe this season. In the river district, where a large amount of new land has been put into rice, the loss has been heavy.

Black leaf spot (cause undetermined) is very common and abundant, as usual. Loss very slight.